

respectfully traverse those rejections for at least the following reasons.

Among other things, the method of claim 13 includes:

“forming a lower seed layer on the lower electrode,”

and

“forming an upper seed layer on the ferroelectric layer.”

As explained in the specification, during a subsequent annealing step, the upper and lower seed layers become crystallized before the ferroelectric layer does (page 8, lines 18-20; page 9, lines 12-14; page 14, lines 7-8). Thus, each of these layers acts as a seed layer (page 16, lines 8-9) for the subsequent crystallization of the ferroelectric layer so that crystallization proceeds uniformly from the upper and lower surfaces of the ferroelectric layer toward the middle (page 9, lines 14-15; page 13, lines 19-21; page 14, lines 9-10; page 16, lines 12-14), such that characteristics of the upper and lower interfaces of the ferroelectric layer match each other (page 4, lines 5-7; page 6, lines 4-5; page 8, lines 15-17; page 9, lines 1-2; page 14, lines 1-2, 10-11; page 16, lines 14-16). This prevents the so-called imprint phenomenon caused by a difference in characteristics between: (A) an upper interface between the upper metal layer and the ferroelectric layer, and (B) a lower interface between the lower

metal layer and the ferroelectric layer (page 3, lines 3-6; page 6, lines 4-7; page 8, lines 14-15; page 11, lines 2-3; page 16, lines 9-10).

Applicants respectfully submit that Larson clearly fails to disclose forming any seed layers. Larson does not disclose or suggest anywhere that layers 30a and 30c, cited by the Office Action, should be or can be seed layers, and indeed as disclosed by Larson, layers 30a and 30c are not seed layers. For example, in each of the first through fourth embodiments, there are intermediate electrodes 35a and 35b between the ferroelectric layer 30b and the layers 30a and 30c, respectively. So there is no possibility that the layer 30a or layer 30c could be a seed layer for the ferroelectric layer 30b. Meanwhile in the fifth and sixth embodiments, Larson teaches that “[l]ayer 30b can be established, for example, using the same material and in the same manner as ferroelectric material 30a” (col. 6, lines 56-58). So, again, it is not even possible for layer 30a to be a seed layer for ferroelectric layer 30b.

Therefore, for at least the foregoing reasons, it is not possible for Larson to anticipate the invention of claim 13. Accordingly, it is respectfully requested that the rejection of claim 13 based on Larson be withdrawn.

Claims 14-18 dependent from claim 13 are deemed to be allowable for at least similar reasons, and for the following additional reasons.

Claim 15

Among other things, the method of claim 15 includes a feature of forming lower and upper seed layers using a material having a crystallization temperature lower than that of a material for forming the ferroelectric layer. Applicants

Applicants respectfully submit that Larson clearly fails to disclose such a feature. Indeed, the Office Action has failed to cite any Figure or text anywhere in Larson where it is alleged that such a feature is disclosed.

Applicants respectfully request that the Examiner either provide a citation to something in Larson where such a feature is allegedly disclosed, or that the Examiner withdraw the rejection of claim 15.

Claim 17

Among other things, the method of claim 17 includes a feature of forming lower and upper seed layers using a material having a higher Pb content or a higher Ti content than the ferroelectric layer. Applicants respectfully submit that Larson clearly fails to disclose such a feature. Indeed, the Office Action has failed to cite any Figure or text anywhere in Larson where it is alleged that such a feature is disclosed.

Applicants respectfully request that the Examiner either provide a citation to something in Larson where such a feature is allegedly disclosed, or that the Examiner withdraw the rejection of claim 17.

35 U.S.C. § 103

The Examiner rejected claims 19-20 under 35 U.S.C. § 103 as allegedly being unpatentable over Larson in view Hsu et al. U.S. Patent 6,048,738 (“Hsu”). The Examiner has cited Hsu solely for the switching element noted as missing in Larson. However, Applicants respectfully submit that Hsu fails to cure the other defects in Larson discussed above with respect to claim 13 from which claims 19 and 20

depend. Accordingly, it is respectfully submitted that claims 19 and 20 are patentable over any combination of Larson and Hsu.

CONCLUSION

In view of the foregoing explanations, Applicant respectfully requests that the Examiner reconsider and reexamine the present application, allow claims 13-20, and pass the application to issue. In the event that there are any outstanding matters remaining in the present application, the Examiner is invited to contact Kenneth D. Springer (Reg. No. 39,843) at (703) 715-0870 to discuss these matters.

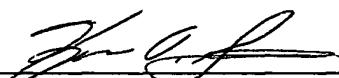
If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 50-0238 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17, particularly extension of time fees.

Respectfully submitted,

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Date: 28 January 2003

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